

# TOYS FROM TRASH

Arvind Gupta's playful educational mission.

BY ROHIT SRIVASTWA

Arvind Gupta ([arvindguptatoys.com](http://arvindguptatoys.com)) is the creator and driving force behind the popular “Toys from Trash” video series on YouTube, which teaches engineering principles to kids by showing how to make simple toys from common materials. I recently spoke with him in his office at India's University of Pune, and it was difficult to transcribe the interview afterward. Each time I tried, I'd get distracted by making another one of his toys.

**Rohit Srivatswa:** How did you get started making toys for kids?

**Arvind Gupta:** I studied engineering at IIT Kanpur in the 1970s, then got a job in the automobile industry making trucks. This was when India was newly free from the colonial era and ready to rise and shine. At the time, there was a national effort to revitalize science education in villages. I joined that program and spent a few months in a village, teaching (and learning from) students — not using books, but by making toys out of the common wares available in a village market.

I soon realized I was not made to build trucks, and this was a turning point for me: from an electrical engineer from one of the most prestigious technical institutes in India, to a man who makes toys out of trash.

**RS:** What are some of your favorite success stories with this teaching method?

**AG:** My personal satisfaction comes from seeing the happiness and gleam in the eyes of kids around me who learn new things from my toys. Schools try to cram similar material into students, but when kids do it for themselves — learn basic physical principles that way — their eyes glitter, and that's my happiness.

One favorite story concerns an asteroid called 21575 Padmanabhan. Several years ago I met a girl named Hamsa Padmanabhan. After we met, she wrote a 15-page research paper inspired by my Magnetic Levitating Pencil toy. The paper won multiple awards at the 2006 Intel International Science and Engineering Fair, and afterward, astronomers at MIT named the asteroid in her honor. She

## SMART, CHEAP, AND FUN

- ✓ Arvind Gupta demonstrates Matchstick Meccano geometric solids made of matches and bike valve tubes.
- ✓ Newton's Color Disc made from a CD and a marble.
- ✓ The Magnetic Levitating Pencil toy that inspired Hamsa Padmanabhan's award-winning research paper.
- ✓ The Touching Slate draws with yarn on velcro.

was just 16 at the time, and she's currently doing her postgrad in physics here at Pune University. She is a star now — literally!

**RS:** How can people support your work?

**AG:** I have just one request: translate my videos into as many languages as you can, and gift it to kids across the globe. All I want is the happiness in their minds from knowing that they can create things. My work is available in text format as well as video, and volunteers have translated it into many Indian languages already. Now I just hope that more people will make it accessible in other locations that lack heavy monetary resources for helping kids learn and grow. My toys are low-cost so that anyone can afford making them without worrying about money. So please go ahead and spread the good work; the kids will bless you for doing that.

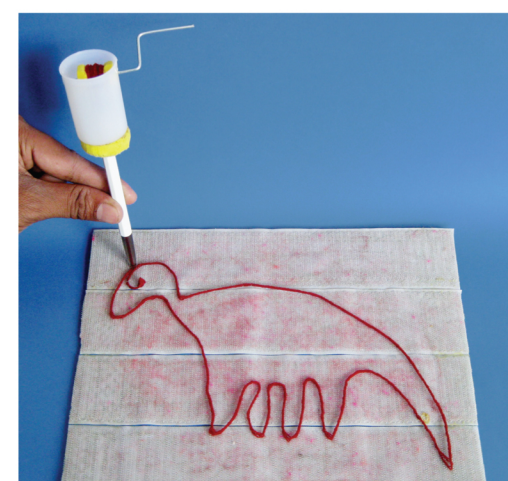
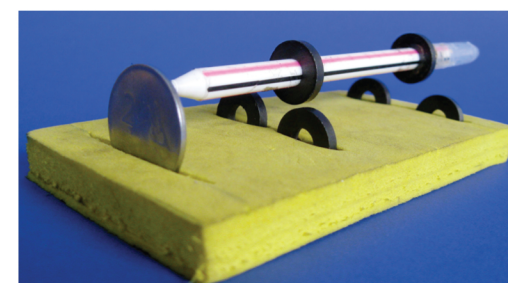
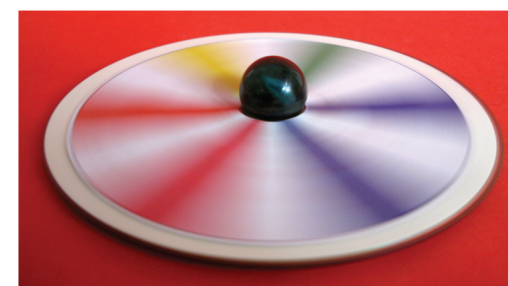
There's another request I have for teachers: let students make such toys themselves and do some practical learning, rather than just cramming them with text on paper.

**RS:** Tell us about one toy that touches your heart.

**AG:** The Touching Slate was devised by a friend-couple for their blind child, Nikunj. It's a pen that “writes” with a spool of wool yarn on a panel covered with the hook side of velcro. Blind kids can use the slate to make shapes and recognize them by feel, but it's fun for sighted children as well. Together, these friends of mine and I have made many such slates and gifted them to blind kids.

✚ See [makezine.com/28/gupta](http://makezine.com/28/gupta) for instructional links to all the toys mentioned in this article, plus additional photos and video.

Ashok Rupner



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